Name:_____ Date:_____

Calculus: Review for Q3 Quarter Exam Review #3

This review sheet is not comprehensive. Be sure to study your old tests, notes, and homework as well!

1. A pile of sand in the shape of a cone whose radius is twice its height is growing at a rate of 5 m^3/sec. How fast is its height increasing when the diameter is 40 meters?
2. Evaluate: $\int(-2x^{-3}+20x^{-5})dx$
3. Evaluate: $\int\left(\frac{-14x^{5/2}}{2}\right)dx$
4. Evaluate: $\int\left(\frac{-5\sqrt[3]{x^2}}{3}\right)dx$
5. Evaluate: $\int_{-1}^{3}(-x^3+3x^2+1)dx$
6. Evaluate: $\int_{-3}^{0}\left(4\sqrt[3]{x}\right)dx$
7. Given $\frac{dy}{dx}=\frac{6x^2-2x^3}{x}$ and $y(1)=4$ find y .
8. Given $f''(x)=\frac{-12}{x^3},\ f'(1)=8, and\ f(1)=3.\ Find\ f(x).$
9. Find $f(x)$ given that $f'(x)=6\sqrt{x}+5x^{\frac{3}{2}}\ where\ f(1)=10.$
10. Find $f(x)$ given that $f'(x)=42x^2-6,\ f(0)=5 and\ f(1)=-4.$